Volunteer Firemen

DECEMBER

1942

NATIONAL FIRE PROTECTION ASSOCIATION
INTERNATIONAL
60 Batterymarch Street Boston, Massachusetts

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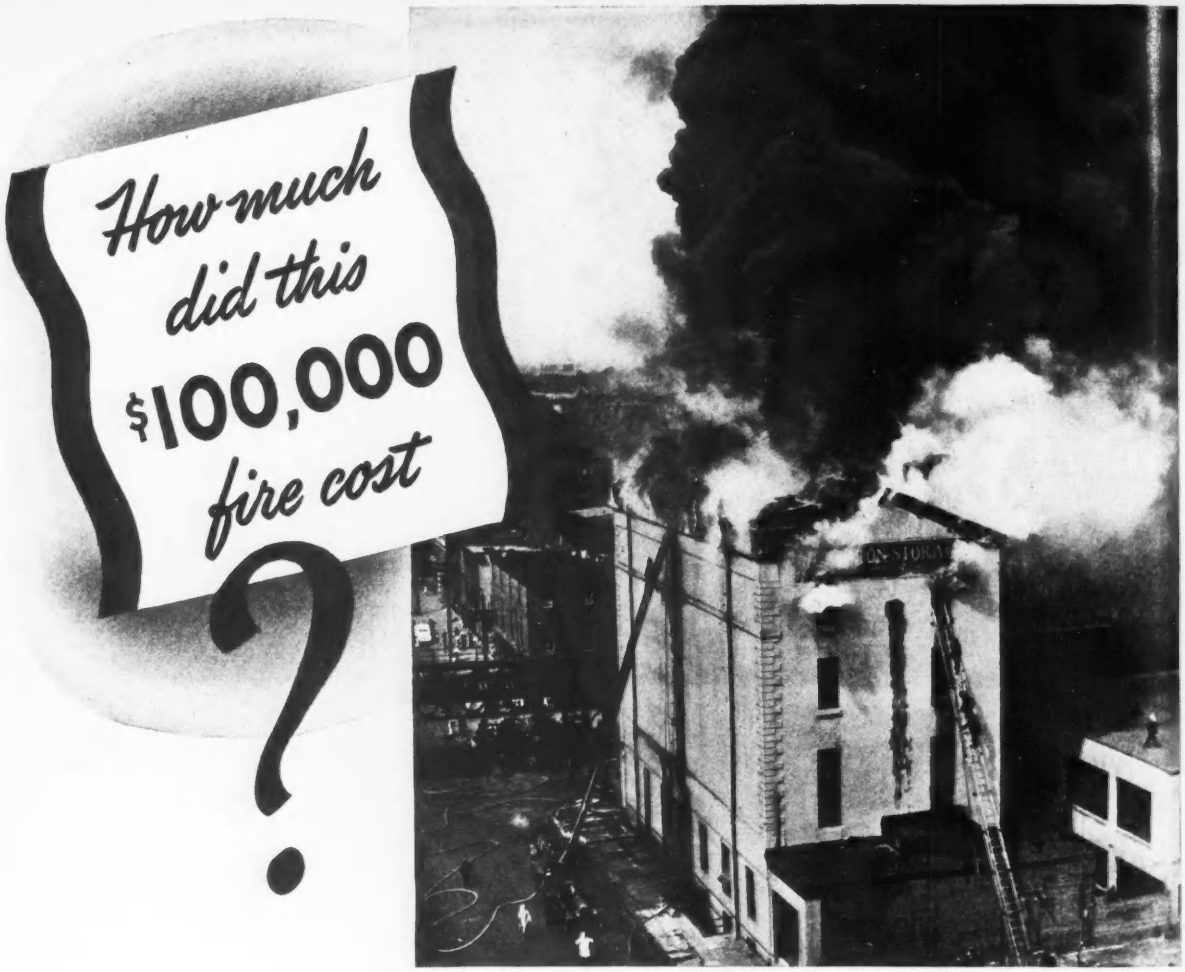

According to newspaper reports of this fire, "the loss was placed at $100,000..."

But what did the fire actually *cost?* For the physical property that fire destroys is only the *beginning* of the loss. What really hurt are the far-reaching after-effects—interruption of business, customers lost, destruction of irreplaceable records, impaired credit standing, inability to fill orders—and a host of other intangible, but very real, losses which have driven many a business into bankruptcy.

And today, even these "intangible losses" seem trivial compared to the fact that a serious fire in any establishment whose products or services are related to our war effort may result in delays in production schedules or in delivery of supplies to our armed forces.

★ ★ ★

By assuring prompt discovery of fire, and immediate and accurate alarms, A.D.T. Protection keeps physical losses to the minimum, thereby also protecting the intangible values that always are affected when serious fire stops a business. A.D.T. Fire Protection Services include: Sprinkler Supervisory and Waterflow Alarm; Aero Automatic Fire Alarm; Manual Fire Alarm; Central Station Watchman's Reporting Service. Write for free descriptive booklets.

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Controlled Companies of **AMERICAN DISTRICT TELEGRAPH CO.** *155 Sixth Avenue, New York, N. Y.*

CENTRAL STATION OFFICES IN ALL PRINCIPAL CITIES OF THE UNITED STATES

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Electric Protection Services

AGAINST FIRE · BURGLARY · HOLDUP

A NATION-WIDE ORGANIZATION

Volunteer Firemen

Volume 9 — Number 12

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THE front cover picture this month is presented as typical of many fires that are stopping or slowing defense production due to neglect of well-known fundamentals of fire protection and fire prevention. The fire shown resulted in the destruction of the National Silver Company and the F. B. Rogers Company plant buildings at Taunton, Massachusetts, during September. About 50 per cent of the production was said to have been war work, including the manufacture of bomb noses. Failure to segregate obvious hazards including spot welding, pyroxylin scrap, and open lacquer dip tanks resulted in a flash fire. Fire Chief Edward F. Gorey found on his arrival that the post indicator valve controlling the automatic sprinkler system was closed. The loss was estimated at $275,000.

BY the time this issue of VOLUNTEER FIREMEN reaches most of its readers, one year will have passed since the attack on Pearl Harbor brought the United States of America into active warfare on the side of the United Nations fighting the Axis.

During that year many changes have come to the fire service. A lot of fire departments have been hit hard by the loss of men to the military services. New fire equipment has been unobtainable in many cases where it was badly needed. Substitute materials have been employed in the manufacture of emergency fire equipment in cases where shortages of critical materials prevented adherence to usual specifications. The manufacture of motor fire apparatus, hose, first-aid fire appliances and other forms of fire fighting equipment is being carried on under emergency specifications designed to provide serviceable equipment in spite of limitations on critical materials.

On the whole, the past year has not been one of lost motion in the fire service. More training work was accomplished by fire departments than ever before in history. The N.F.P.A. organized a committee of leading experts in the firemen's training field to help expedite this important work. Fire departments have gained many friends among the citizens of their communities and have secured public cooperation in the furtherance of fire defense measures. Improved fire records in many communities show the results of this public interest in fire safety work. In fact, with the exception of an undesirably large number of serious fires in war industries, the fire record for the past year has been surprisingly good for a war period.

During the past year fire departments have organized and trained auxiliary forces to be ready for air raids or other wartime fires. The U. S. Office of Civilian Defense is now supplying more than $65,000,000 worth of auxiliary fire apparatus to departments in defense areas in order to supplement usual fire defenses.

In the fire service, as in the military field, 1942 was a year of organization, preparation, and training. The fire service can look forward to 1943 as a year in which the results of their planning will be proved by experience. Except for possible fires resulting from enemy action, the fire departments of many communities will be able to look to the future with greater confidence in their ability to meet emergencies.

THERE appears to be some reason to hope that by next year it will be possible for communities having a legitimate need for new fire equipment to secure deliveries. This should ease the minds of many fire officials who realize that the war caught their departments in a condition where too much dependence had to be placed upon obsolete fire apparatus. It is to be hoped that many communities will learn from this experience. In the future perhaps more cities will follow a systematic plan for the replacement of apparatus rather than take a chance that perhaps, if nothing happens, the old truck will get by for one more year. Had regular replacement plans been followed during the years prior to the war, it would not have been necessary to fight wartime fires with 56 per cent of our municipal fire apparatus over-age and largely unreliable. It may be some time before the day will return when fire departments can buy custom-built apparatus, but it is reasonable to assume that communities wishing to buy standard types of apparatus will get many of their orders filled in 1943.

SPEAKING of wartime fire protection, have you ever considered how well VOLUNTEER FIREMEN has kept you reliably informed regarding fire protection news. Perhaps you know of some other department to which you could recommend membership in the Volunteer Firemen's Section.

LAST month seven departments with 63 men joined the Volunteer Firemen's Section for the first time. Sixty-two departments with 1,591 men renewed membership. This makes a total enrollment of 759 departments and 15,186 men. The following departments are newly enrolled:

Prichard Volunteer Fire Department, Prichard, Alabama.

Bristol Fire Company, Yorkville, Illinois.

Somerset Fire Department, Somerset, Massachusetts.

Minden Volunteer Fire Department, Minden, Nebraska.

Eden Fire Company, Incorporated, Department No. 1, Eden, New York.

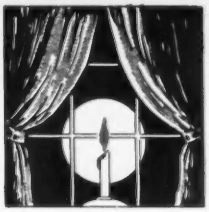
Hoosick Falls Call Men's Association, Hoosick Falls, New York.

Wallaceburg Fire Department, Wallaceburg, Ontario.

THE estimated U. S. fire loss for October, 1942, according to the National Board of Fire Underwriters, is $22,621,000, a decrease of $8,212,000 from the same month last year. Losses for the first ten months of 1942 were $13,038,000 less than for the same period of 1941. These figures are based on notices of incurred loss received by insurance companies, members of the board, plus an allowance for unreported and uninsured losses. The following table shows the losses for the first ten months of 1941 and 1942.

	1941	1942
January	$26,470,000	$35,567,000
February	26,102,000	30,819,000
March	31,471,000	30,505,000
April	29,330,000	27,960,000
May	25,637,000	23,233,000
June	24,943,000	22,410,000
July	23,678,000	21,000,000
August	21,122,000	19,680,000
September	24,668,000	20,443,000
October	30,833,000	22,621,000
Total 10 months	$267,274,000	$254,233,000

Make This a Safe CHRISTMAS



CHRISTMAS time is the great season of gladness and good cheer. Even in wartime the observance of Christmas helps all of us to rise above present hardships with an expectation of happier days ahead. Those of us who are fighting the battle of the homefront have a responsibility toward fellow firemen and others who are overseas on the battlefronts. It is our job to see that the great domestic enemy—FIRE—does not destroy lives and property in our home communities. Accordingly we must guard against the many fire hazards commonly present during the Christmas season.

Experienced firemen do not have to be told that the Christmas season is likely to be a busy one for them. Not only are the usual winter fire hazards present, but the tremendous activity both in mercantile establishments and in the home, and in the community in general, present many chances for fires to start.

With fire departments short-handed, at the present time, it is bad judgment to sit back and hope that nothing will happen. Each fire company should devote time during its December meetings toward planning a fire-free Christmas. It does not take much imagination for a person familiar with the large amounts of combustibles such as decorations and wrappings commonly found both in homes and stores at Christmas time to grasp the importance of making such places as crowded shopping centers safe from fire.

Among the special problems to be tackled is the necessity of promptly disposing of large piles of discarded packing materials which accumulate in the shopping district each day. Many fire departments find it necessary to maintain a special mercantile district patrol during the Christmas season to see that such rubbish is disposed of daily.

Another important consideration is that most stores commonly go "all out" in their decorations to help spur Christmas sales. Unless such decorations are incombustible or are flameproofed they may present a serious fire and life hazard to persons in crowded stores.

A mixture of half borax and half boric acid applied in water solution by dipping or spraying is about the most suitable flameproofing treatment for fabrics used for decorative purposes. Impregnation to at least 10 per cent of the weight of the fabric is the minimum recommended. More detailed information on this subject is available in the N. F. P. A. pamphlet, "Flameproofing of Textiles" available at a cost of 15 cents per copy.

Other special Christmas hazards found in stores are the numerous special displays, many of which involve temporary electric lighting and combustible display booths. Due to the present shortages of new electrical equipment there is added danger from use of old, worn wiring. A recent release by the OCD advised against elaborate lighting displays this Christmas. The release pointed out that such displays are not only a fire hazard but they consume needed electrical power.

Dangers from Christmas fires are not limited to the shopping districts. Combustible decorations are equally dangerous in crowded entertainment centers such as club rooms and community halls.

Not among the least of the Christmas dangers is the thoughtless practice of some churches where children in flimsy robes crowd down the aisles with candles flickering dangerously in their hands to form a candlelight procession.

Candles have largely been eliminated from the family Christmas tree because of the terrible fire toll they have caused but it is to be hoped that it will not be necessary to experience a major fire tragedy or panic in which little children are needlessly sacrificed, in order to eliminate the unguarded candle from the hands of small children as part of pageantry.

This attractive folder on Christmas fire hazards in red and green, illustrated above in reduced size, is available for general distribution from the National Fire Protection Association, 60 Batterymarch Street, Boston, Mass., at a cost of $1.50 per hundred or $10.00 a thousand copies. Single copies free on request.

AS in most fire prevention tasks the job of securing a safe observance of Christmas depends upon the sales ability of the fire department members. Here is another opporunity for the department to utilize publicity channels such as the newspapers and local radio stations. A good example of such publicity was the following special message from the volunteer fire department printed on the front page of the Earlville, Iowa, *Review* during the Christmas season under the heading, "Whose House Shall We Come to on Christmas Day?"

"There are twenty-five of us, and when we come we generally bring lots of the neighbors. As a rule we leave things in pretty poor shape after our visit. Sometimes we chop holes in the wall, spill water on the rugs and furniture, even break the doors down, and we have been known to climb up on the roof and tear off the shingles.

"We are just as apt to come at midnight as we are at noon. If we come at meal time we are sure to spoil your appetite. There is just one thing about us, we never come unless we are invited, and despite all our shortcomings, we are generally welcome when we arrive. The only complaint we hear is that we didn't come sooner.

"We don't like to come! Once or twice some of us have nearly been killed making a call. We are pretty apt to spoil some of our clothes, we often get hurt, and this time of the year we are always coming down with a cold after a visit of this sort.

"Sure, you have guessed it by this time. We are the Fire Department!

"But all joking aside, whose house shall we come to on Christmas Day?

That dried up Christmas tree in your parlor, all trimmed up with pretty flammable decorations, is pretty apt to burn if you give it half a chance. Or those worn out Christmas tree lights that never did have an Underwriters' label on them, present a serious fire hazard. We doubt if there is anyone in this district foolish enough to put a lighted candle on their Christmas tree, but if there is, we'll plan to come after yours catches on fire. Another way, just about as sure to burn down the house, is to pour gasoline on the curtains and light them. It's in the same class with candles on a dry Christmas tree.

"Christmas is the time of year when there is an abundance of rubbish in every home, such as wrappings, empty paper boxes, cotton batting, festooned decorations and such. These make excellent fuses to start fires with, and add greatly to the fire hazard in your home. Make it a habit to burn them up before they burn you up, putting them in the furnace where they belong.

"Heat operated toys and new electrical gadgets that do not carry the Underwriters' label are quite apt to be the cause of our making your home a Christmas visit. They are dangerous.

"Christmas Fire Hazards are not confined to the home. Public places are often just as dangerous, or more so, if proper precautions are not taken. Most every public place is decorated and crowded during the holidays. And fire in any crowded public place is liable to cause a panic. Packing material and rubbish should not be allowed to accumulate in stores at this time. Aisles and exits should be kept unobstructed and fire extinguishers should be ready to operate.

"Schools and churches will be having their usual Christmas celebrations and parties. Let them be happy ones by avoiding the tragedy of fire. Follow the simple safety rules that we have enumerated in this article, and that everyone knows so well, but sometimes forgets!

"We'll stay away on Christmas Day, if you do.

The Fire Department."

AFTER Christmas there should be a follow-up by the fire department to see that old Christmas trees ARE disposed of. The importance of this was well illustrated by a classic example at Providence, R. I., where during a fire department inspection campaign conducted in observance of Fire Prevention Week, 10 months after Christmas, 500 old and thoroughly dried trees were found remaining in basements waiting to contribute to any fire that might occur.

CHRISTMAS FIRE HAZARDS IN THE HOME

Christmas trees and their decorations are fire hazards which must be watched most carefully. When a tree is brought into the house it is obviously going to dry up. A freshly-cut tree has about the same fire hazard during the first day or two that the same type of evergreen has while growing, but it becomes a more serious fire hazard every hour. At the end of a week, it will be highly combustible. It is best to bring in a fresh tree as short a time before Christmas as possible and to remove it soon afterwards. If this is done ordinary precautions should prevent it from taking fire.

The tree can be kept fresh if set up in a pan of water. The tree should be cut off at the base at an angle and at least one inch above the original cut. It should be kept standing in water during the entire period that it is in the house with water being added at intervals to keep the water level above the cut. This method when used with fresh trees reduces the flammability as effectively as any fireproofing chemicals. Chemicals may cause the tree to turn brown or yellow or lose its needles. The place selected for the tree should be well away from stoves, radiators, and other sources of heat. The tree should be well secured against falling and be so placed that whether standing or fallen it cannot block a doorway that might be needed as an exit from the room.

The candle is found on Christmas trees more rarely every year, but none the less it is used unwisely in many places during the Christmas season. Open flame lighting is entirely out of place in the home unless candles and lamps are set well away from the Christmas trees, curtains, and flammable decorations. Electric lights provide a safer means of illumination. Nevertheless it is important that Christmas lights be in good condition. A short circuit in worn wiring can be sufficient to start a tree burning. Electrical lighting sets and decorations bearing markings indicating listing by Underwriters' Laboratories, Inc., have been tested against fire hazards. In addition, old equipment should be carefully inspected annually to see that all connections are tight and that wires are not frayed. Particular care must be exercised during the holiday season not to overload the individual wiring circuits and to make sure that proper fuses are used to safeguard against a chance overload. It is better where necessary to eliminate some of the lights rather than to use a fuse with a larger rating because an overloaded circuit without proper fusing is likely to start a fire in the walls. Be careful of heat operated toys and new electrical gadgets if they do not bear markings indicating listing by Underwriters' Laboratories, Inc.

Elaborate decorations may prove a very serious hazard unless incombustible materials are used. Flameproofed materials can be purchased at many stores. Insist on them. In addition, glass, asbestos, and other non-combustible decorations are available nearly everywhere and are as attractive as those of paper, cotton, and pyroxylin. Cotton batting and paper costumes will also ignite easily and burn with great rapidity. Combustible Santa Claus' whiskers or costumes have caused many a Christmas fire tragedy.

A Christmas Suggestion

Every member receives a handsome membership certificate illustrating the history of fire protection.

YOUR ENTIRE DEPARTMENT CAN SHARE N.F.P.A. MEMBERSHIP

• Through the Volunteer Firemen's Section, fire companies may obtain the advantages of N. F. P. A. membership. Each member fire company is entitled to have VOLUNTEER FIREMEN magazine sent to the homes of ten firemen. As a member, the fire company receives at headquarters a set of all other regular N.F.P.A. publications. This includes the QUARTERLY MAGAZINE and monthly NEWS LETTER.

• Membership in the National Fire Protection Association costs ten dollars per year but if more than ten firemen want to receive the magazine, an additional one dollar should be sent for each fireman in excess of the first ten enrolled.

• What Christmas present could contribute more toward maintaining interest in your company than a membership in the Volunteer Firemen's Section of National Fire Protection Association?

Beware of Explosive Incendiaries

NEW GERMAN FIRE BOMBS PACK A DEADLY EXPLOSIVE CHARGE TO KEEP FIRE CREWS OUT OF RANGE UNTIL FIRE HAS SPREAD

REPORTS from Great Britain indicate that the Germans are now using a new type of incendiary bomb. This fire bomb is designed to go off as late as seven minutes after the bomb has landed. Thus firemen must stay at a respectful distance while the fire gains headway. The explosive charge is a heavy one and has resulted in many fatalities in England where fire watchers and air raid wardens tried to handle these new bombs with the old close-range squirt and spray techniques. This development makes obsolete much of the previously published advice on how to dispose of incendiary bombs. Attacking the new bomb with either a solid stream or a fine spray may prove fatal for the fire fighter unless he can work from behind a shelter as substantial as a brick wall. The information on incendiary bomb control contained in the N.F.P.A. book "Fire Defense" and in other N.F.P.A. publications will be revised in future issues to warn against the new type fire bomb. Likewise the information on methods of incendiary bomb control previously released by OCD and various other agencies, including the various motion picture films showing how to handle 1 kilogram magnesium incendiaries, is largely obsolete. The N.F.P.A. Executive Office is recommending that all such publicity material be scrapped in so far as it advises close range attack on incendiaries. However, the information regarding Japanese fire bombs printed in the October VOLUNTEER FIREMEN holds good.

THE new OCD instructions regarding methods of handling fire bombs are printed with this article. In following these instructions the N.F.P.A. recommends to its members that extra emphasis be placed on the personal hazard and the difficulty of fire fighting resulting from the new type of bombs.

This new development emphasizes the advice that VOLUNTEER FIREMEN has given to its readers since the start of the war, that is, that measures for the control of fires started by incendiary bombs are more important than thinking only about the bombs themselves.

As here pointed out several times, it is probable that the enemy will vary the type of fire bombs used from time to time. While an expert may be able to determine at a glance just what type of bomb is being used and the exact methods that will best cope with it, the safest procedure for the average fire fighter is to assume that any fire bomb found contains a powerful delayed-action explosive charge.

Unless a stream can be directed on the bomb or fire from behind a masonry wall or other sturdy barrier, the only safe thing to do is to wait until the explosion has occurred before closing in. At least the bomb should be treated respectfully for five or ten minutes before dealt with at close range. We must forget the widely published advice about putting sand or special extinguishing agents on the bombs and scooping them up.

There is also some question as to the value of small stirrup pumps and even of hand extinguishers unless available in sufficient numbers to handle a fire that is well under way. Hose streams will be needed to handle most fires started by bombs in combustible buildings and contents after the fire has been burning for approximately seven minutes without attention. Of course, if the water supply is intact garden hose streams may prove useful.

FROM the best information obtainable it is believed that the danger of large scale raids on the North American continent is remote at the present time. However, there does exist the definite possibility of so-called "token raids." Coastal areas are most vulnerable but many inland cities might make inviting targets because of war factories at such locations.

In the new technique of mass air raids in which large numbers of planes drop incendiary and explosive bombs on a single target area, so many individual fires are started that the existing fire fighting equipment and personnel may be inadequate. Under such conditions, such features as fire resistive construction and good private protection will minimize the dangers of conflagration without placing chief reliance upon the overtaxed public fire department and its auxiliaries. A sprinkler head does not have to wait behind a brick wall for seven minutes before it comes to grips with an incendiary bomb. Likewise, suitable exposure protection such as wired glass windows or fire shutters assume more than usual importance in confining fire to limited areas.

The best protection against conflagrations resulting from air raids is wide separation of buildings. If a sufficiently large proportion of the target area consists of streets, yards and open spaces between buildings, the raiders will make a much smaller proportion of hits. It is true that cities cannot be immediately rebuilt to make them safe from fire from the air. It is possible, however, to demolish and remove many old dilapidated and abandoned buildings and sheds that are found in almost every community and which, in the event of an air raid, would provide the fuel needed to get a conflagration under way. Many communities already have a systematic program for removal of old "fire breeder" structures. In other places this is a matter that should get prompt attention as a defense measure. In many instances the salvaged materials will pay for the job.

OCD Instructions On Fire Bomb Control

The following information on new types of enemy bombs, explosive and anti-personnel, has been released by James M. Landis, Director, Office of Civilian Defense, in Operations Letter No. 80.

1. The enemy recently has employed new types of bomb—both large incendiaries and the usual small type with a more powerful explosive charge set off by a time fuze. Experience with these bombs in other countries and our own study of the techniques developed to cope with them make it clear (a) that fire continues to be a most important weapon and (b) that, against fire, water is still the best weapon. When heavier, delayed-action explosive charges are added, they are primarily intended to hold off attack on the fire until it has gained dangerous headway.

2. New types of enemy incendiary and anti-personnel bombs are:

a. The usual 2.2 pound fire bomb, with an extension of the nose containing a larger explosive charge. The total weight is increased to five pounds. The bomb is 17 inches long without its tail, or about 21 inches long over all. The incendiary section of the bomb ignites upon landing, but the explosive charge may go off at any time up to seven minutes later. It would be possible to increase this lapse of time without major alteration of design, so that there can be little dependence upon the present time interval. The explosive part may become detached, but this does not lessen its effectiveness. This type of bomb has been employed by the Germans.

b. A combination incendiary and high explosive bomb, in a casing the

same size and shape as the 110-pound high explosive bomb (about 30 inches long and 8 inches in diameter). On impact it throws out 60 small metal containers with thermit-type filling and six larger tumbler-shaped fire pots containing a magnesium-type filling which is pre-ignited. Almost immediately after ejecting the incendiary units, a 12-pound charge of TNT in the nose of the bomb explodes.

c. A phosphorus-oil bomb in a casing similar to that of the 110-pound high explosive bomb, but containing only the usual type of fuze to split the casing open on impact and scatter its sticky liquid contents. The contents ignite spontaneously because of the phosphorus. The phosphorus may be extinguished by water but will break into fire again if allowed to become dry.

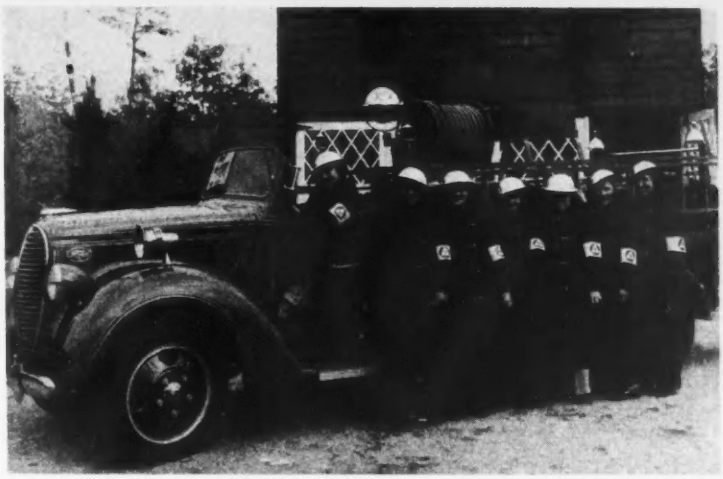
d. A Japanese bomb weighing about 110 pounds and containing, besides a quantity of thermit, a considerable number of rectangular-shaped rubber-impregnated incendiary pellets which scatter widely and start a substantial number of small fires which may be attacked immediately.

3. The most effective method of attacking fires caused by these bombs is the same as was outlined in revised instructions last July concerning the ordinary magnesium-thermit type of fire bomb —a jet or direct stream of water. The small fire bomb without explosive charge is still the most widely used of all types except by the Japanese. If bombs fall where they cannot start fire and cannot be seen from the air, they should be left to burn themselves out, but elsewhere they must be attacked. The bombs without heavy explosive charges or those which explode upon impact present only the problem of dealing with fire and thus require no additional instructions.

4. The small fire bomb with delayed-action explosive charge requires a revision of instructions concerning the types of cover that provide full protection from the blast.

a. A brick wall four and one-half inches thick is considered full protection against the explosive charge now being used with a time fuse in small magnesium bombs. In walls built of outside bricks of the best quality, a three-inch thickness will prevent penetration. Lath and plaster walls, wooden doors, tables or chairs do not offer full protection from the explosion of this charge. Personal risk may be greatly reduced by assuming a crouching or prone position behind the best available cover.

b. Where fires are likely to spread rapidly—as in congested districts and where there is relatively little fire-proof construction—even bombs which may explode should be attacked promptly from behind the best available cover. Care should be exercised to expose no more than one hand while playing a stream of water on the area surrounding unexploded bombs, but this risk is considered necessary where unchecked fires might start a conflagration. Water may be thrown from a small (or one pint) container, dipping from a larger container, if a pump has not arrived. Although less efficient than a jet of water, this method may permit the wetting of inflammable material within range of the bomb. Water should be thrown from a crouching position from the cover of a solid wall, as in other methods. In this case the water need not be thrown on the bomb.



Fire fighting is not entirely a new experience for women. In Great Britain women auxiliaries attached to the fire service have been doing outstanding work as chauffeurs and assistants to the men fire fighters. A number of American fire departments have had women's auxiliary organizations for many years. Now in wartime some of these groups are beginning to share with the men the actual work of defending their homes and communities against fire. Captain Harry N. Marotta of the Breton Woods Volunteer Fire Company of Ocean County, New Jersey, sent the above picture of the department's Ladies' Auxiliary Corps. These women stand ready to do actual fire fighting in the absence of regular members who are away on military service or are working in defense plants.

c. Use of a jet of water enables the operator to work at a much greater distance than the "short-range" methods employing sand, other smothering agents, or a spray of water. Sand in the form of bags or mats cannot be depended upon, because these bombs, upon explosion, have a greater fragmentation effect than the explosive incendiary bombs formerly used. The public should be warned against the use of all such smothering agents as "bomb extinguishing" powders: also against such devices as scoops, grabs and snuffers. They are entirely without merit and may endanger the lives of persons who depend upon them. The use of spray and sand is no longer recommended because the possibility of fragmentation makes it too dangerous to approach the bomb sufficiently close to apply them.

d. The new types of bombs increase the importance of storing water in the home, as heavier explosive charges and larger bombs make it even more hazardous to depend upon normal water service. (Containers previously used for sand should now, if possible, be used for water.) It should also be pointed out that water storage tanks used in connection with water heaters, hot water or steam furnaces or other home equipment may be used, if they can be drained quickly. The location of the drain valve should be marked so that it can be found promptly in the dark.

5. A thorough search of the premises should be made after every raid. Any unexploded bombs should be reported prompty to the bomb reconnaissance agent for inspection. Where phosphorus-oil bombs have been used, all areas touched by the oil should be kept wet until proper authorities have examined them to see whether phosphorus is present. Physical contact with fragments of such a bomb or any ground or equipment splashed with the liquid should be avoided.

6. These developments in enemy air attack mean that the forces of workers trained to deal with all types of bombs must be increased as rapidly as possible. Plans for recruitment and training of such an expanded force may be expected at an early date. Methods of attack may be changed frequently. Such changes may be even more rapid as our enemies desperately seek to incite fear in civilian ranks, but they should serve only to intensify our efforts to develop a large, alert and well-trained force that is ready.

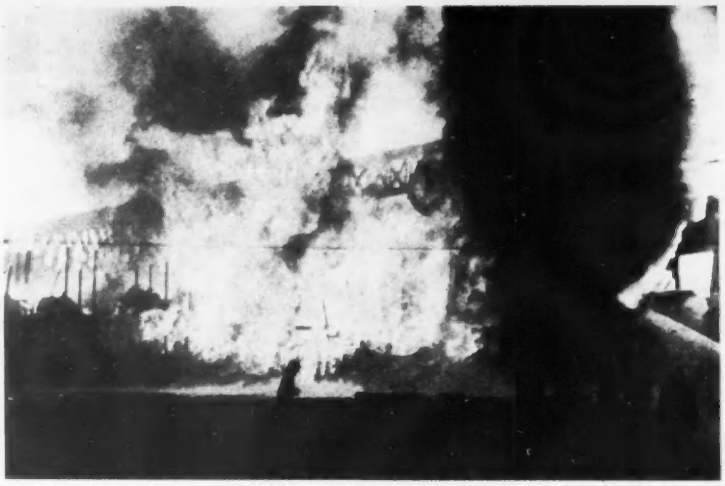
Volunteers Control Butane Gas Fire

ALMOST interesting fire involving considerable quantities of butane gas occurred near Sacramento, California, on September 30, 1942. A truck driver was driving his butane-fueled truck away from a large wooden drivers' supply depot and restaurant when the truck suddenly burst into flames.

The heat from the fire was so intense that the driver immediately leaped from the truck without stopping to shut off the motor. Slowly the truck continued under power and moving in an arc it ran into the large butane storage tank shown at the right of the picture below. The collision broke some piping and the flames from the truck ignited the gas as it escaped from the tank through the broken piping. The fire was so intense that the five passenger cars and a truck parked nearby caught fire. Only two of these vehicles could be towed to safety by the fire department.

The fire started at 1 A. M. An alarm was promptly telephoned to the Fruitridge Fire District. Volunteer firemen responded with three pumpers and a water tank truck and placed six lines of 1½-inch hose in operation to protect exposed property. It was found that the broken piping could not be shut off and therefore extinguishment of the flaming butane at the point where the gas was escaping from the broken piping was not advisable. Had this gas flame been extinguished, the escaping gas which is heavier than air would have spread over a considerable area and undoubtedly would have re-ignited with much more serious results.

After burning fiercely for four hours the 4,200 gallons of butane in the tank were consumed and the fire was out.



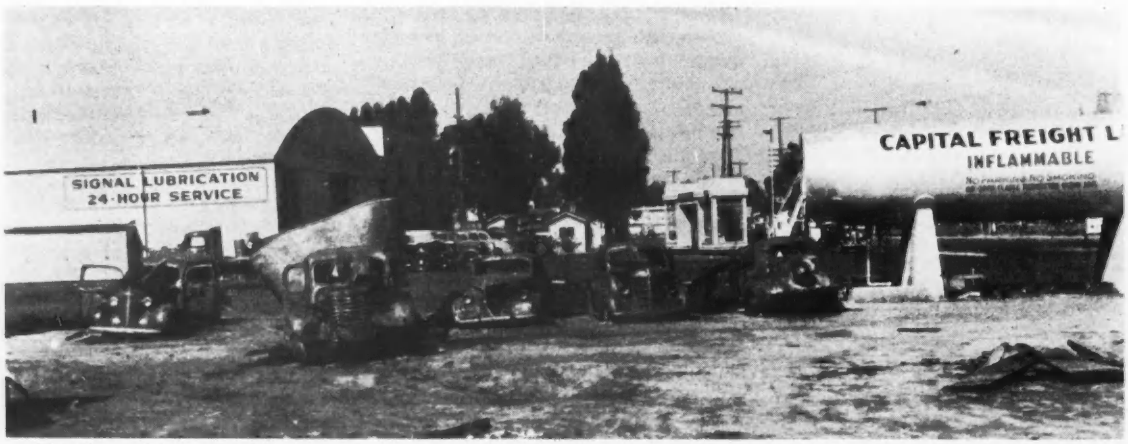
The above picture was taken at the height of a fire that destroyed the Monessen Lumber and Supply Co. plant in Belle Vernon, Pennsylvania, on October 6th. Fire companies responded promptly but the fire spread so rapidly that the first line was destroyed before it could be used. The plant was located in a township area without adequate water supplies. Volunteer departments from Belle Vernon, Charleroi, Fayette City, Monessen, North Charleroi, and North Belle Vernon responded with pumpers having a total capacity of 4,750 gallons per minute. Water supplies available consisted of a nearby creek, a river 1,500 feet away from which water was relayed, a hydrant on a 6-inch dead-end main located in an adjoining borough, and two other hydrants on 4-inch mains. All of these sources were used but supplied only four 2½-inch lines and one booster line. Loss $60,000.

A Survey of Fire Departments in Wisconsin

THE League of Wisconsin Municipalities, 30 East Johnson Street, Madison, has published tabulations of fire department organization and equipment in the various cities of the State entitled "A Survey of Fire Departments in Wisconsin Cities" and "A Survey of Fire Departments in Wisconsin Villages." These reports are available from the league at 50 cents each.

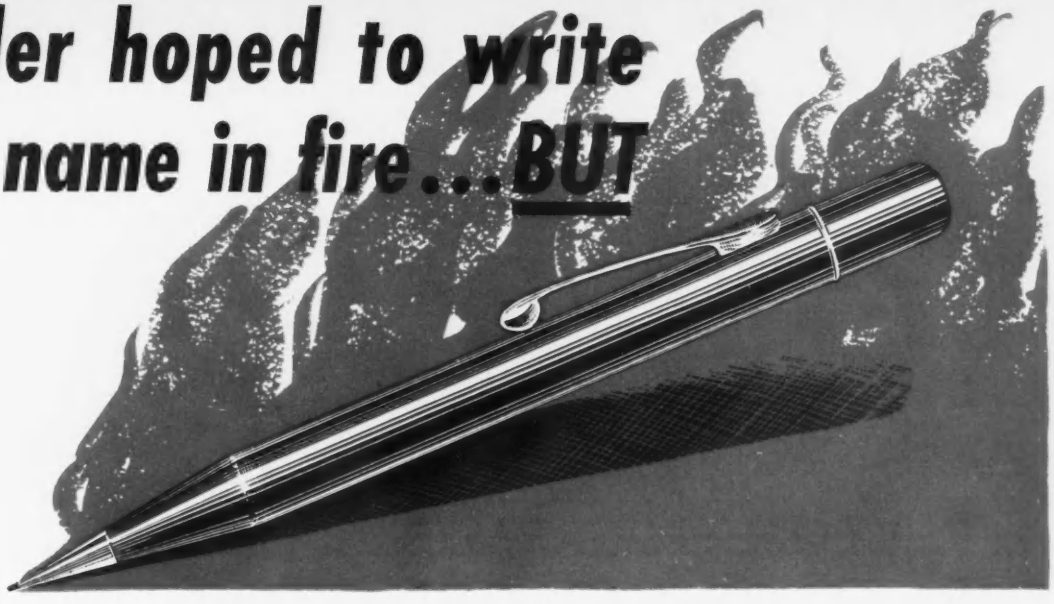
Of the 120 departments listed in the survey of cities, 44 have one or more full-time paid firemen while 90 departments are either wholly or in part volunteer organizations. The largest city listed is Milwaukee (population 787,472) with 733 firemen and 60 other fire department employees operating 37 fire stations. The smallest city listed is Greenwood (population 776) protected by 20 volunteer firemen.

The survey of villages lists the protection for 115 communities of more than 500 population. The largest village is Shorewood with 15,184 population. Most of the villages have less than 1,000 inhabitants. Only four reported any full-time paid firemen. A total of 91 village fire departments have 130 pumpers or pumper-ladder trucks. Details of pay for attendance at fires, drills, and meetings are reported. The annual budgets are given along with details as to how the money is raised.



The above picture contributed by Loren S. Bush, Chief Engineer of the Board of Fire Underwriters of the Pacific, shows the results of a fire in which 4,200 gallons of butane gas burned near Sacramento, California, on September 30th. A truck and four passenger cars were destroyed in the blaze and another truck and a passenger car were damaged. Firemen prevented the spread of the blaze to nearby property.

Hitler hoped to write his name in fire...BUT



This particular incendiary pencil failed to do its job.

Loaded with chemicals capable of setting a disastrous fire, it was part of the equipment of the saboteurs recently captured by the splendid team-work of the F.B.I. and Coast Guard.

Because so much of this equipment was of incendiary nature . . . it is obvious that Hitler plans to use fire as a major offensive against our country.

This means even greater responsibilities for you who fight fires . . . and even greater opportunities to serve America.

So far you have done a great job. You've kept fire losses surprisingly low. And we're mighty glad to be in a position to back you up with the finest Mack equipment ever made . . . equipment designed to make your work safer, and more effective.

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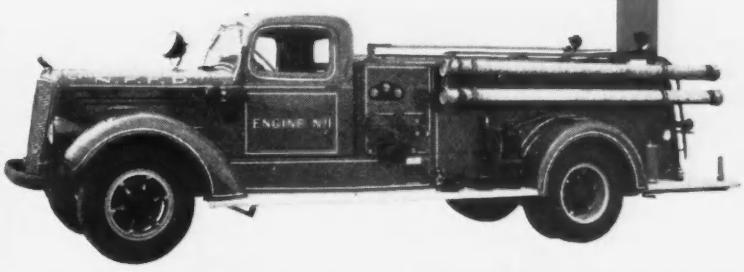
We've always been proud of the fire apparatus we build—and rightly so as the records show. But today we get an especial kick out of the fact that our new equipment on the job in Army camps, vital war production centers and elsewhere is the finest, most dependable we have ever made. A Mack today in war paint and minus chrome plate is a telling example of what the industry's greatest engineering and manufacturing resources can do when the chips are down. If you need real tough, efficient fire fighting equipment . . . write today for complete information about the new Macks.

The Mack Fire Apparatus line includes triple and quadruple pumpers from 200 to 1500 gallon capacity, hose wagons, city service ladder trucks, squad cars—comprising 14 distinct and specialized models. 70 convenient direct factory branches offer a quick, low cost answer to any and all service problems.

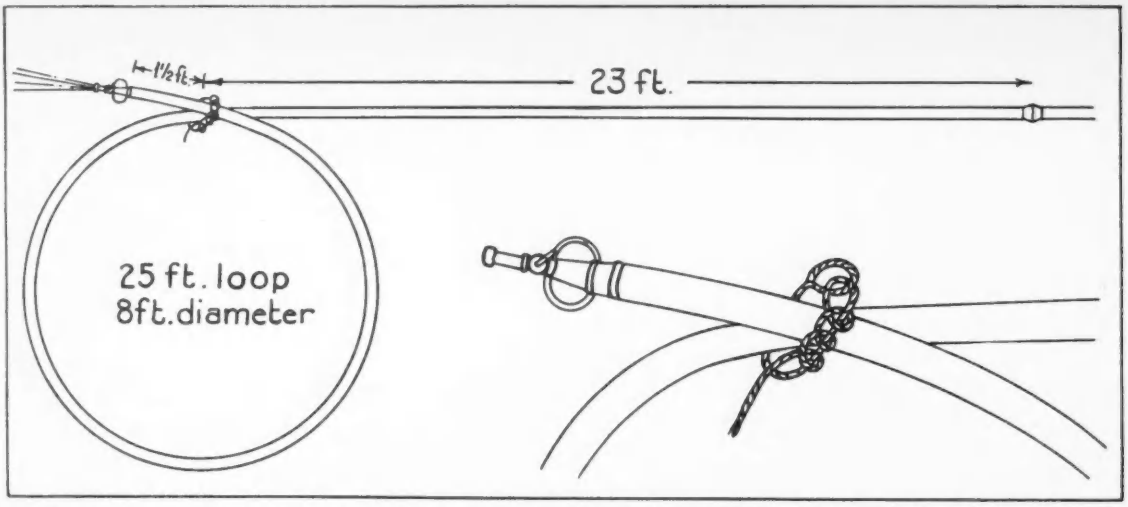
Mack Manufacturing Corp., Fire Engine Division, Long Island City, N.Y.

Mack

BUY U. S. WAR BONDS



Mack Type 75, 750-gallon triple combination pumper recently delivered to National Fire Works, Inc., *Chillicothe, Ohio*



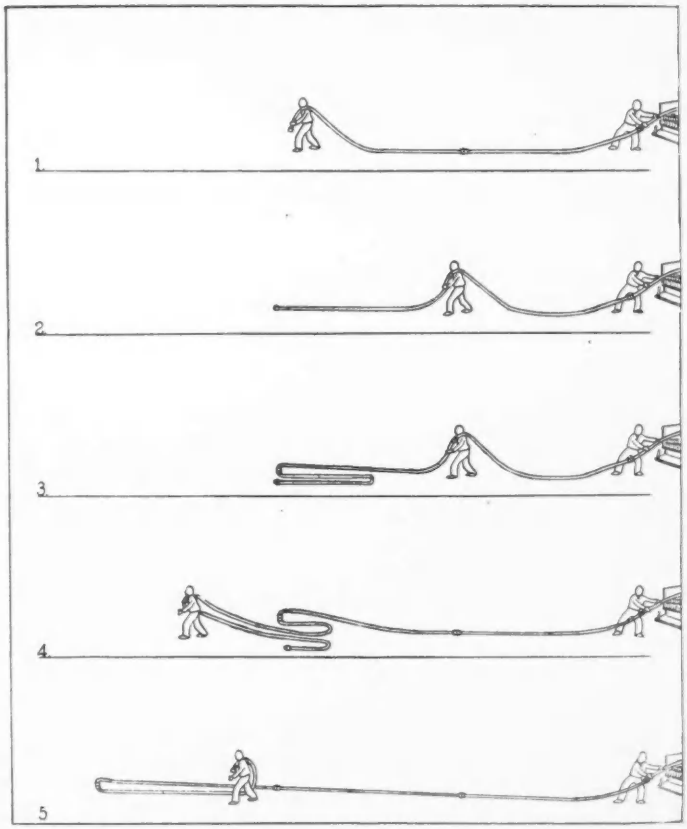
When it becomes necessary for one fireman to control a stream under pressure, 25 feet of hose from the length immediately back of the nozzle is looped to form an anchor 8 feet in diameter. The loop is secured 1½ feet back of the playpipe using a ladder strap or a hose rope tool. This gives the operator enough free hose to control the direction of the stream.

Here's How One Fireman Can Place And Operate a Good Stream Unaided

AT the Annual Fire Department Instructors' Conference held at Memphis last January, Chief Daniel H. Shire of the Mason City, Iowa, Fire Department (Member N.F.P.A.) described the "Keenan hose loop" in use by his department. This loop permits one fireman to control a hose stream operating under substantial pressure whereas three or four men normally would be required.

The importance of this loop may be appreciated by visualizing a situation in which a fire crew of perhaps two or three men arrive at a major blaze which is threatening exposed property on several sides. The need for powerful streams is at once indicated but only enough men are available at the start to provide one man for each of the streams needed. Each fireman "stretches" a line of hose to a point of operation using the method shown on this page above the heading "How to Stretch a Line When Shorthanded." When the line has been brought to the desired point the fireman makes a loop of the hose as shown above. He then straddles the line and calls for water. Of course, proper care should be taken by the pumper or hydrant operator not to turn water into the line too fast.

When preparing this article for publication the editors of VOLUNTEER FIREMEN asked Deputy Chief Robert Fenby, Drillmaster of the Quincy, Massachusetts, Fire Department, to try out the hose loop under varying nozzles and pressures. Using 250 feet of 2½-inch hose, it was found that one man could operate the nozzle, without difficulty, with tips ranging in size from ¾ to 1¼ inches and with pumper pressures varying from 80 to 150 pounds. After making allowances for friction losses in the hose, it seems reasonable to assume that by use of the hose loop one fireman can control a 2½-inch line with nozzle sizes up to 1¼-inch and with nozzle pressures up to 70 pounds.



HOW TO STRETCH A LINE WHEN SHORTHANDED

1. Drag 100 feet of hose from the truck toward the fire. 2. Instead of continuing to drag the hose until exhausted, go back 50 feet and pick up hose at coupling. Extend this coupling to point parallel with the head of the line, 100 feet from the truck. 3. Repeat operation No. 2 until desired amount of hose is stretched in loops on street in rear of the apparatus. 4. Step over to adjacent loops of hose and advance loops further toward fire, moving 100 feet of hose at a time. 5. The line is extended to point of operation.

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Main's greatest structure—Grand Coulee—alone it will generate more hydroelectricity than the 241 power plants in the states of New York, Massachusetts and Pennsylvania. Already it is in war production and its giant turbines are generating power to produce 30 per cent of the aluminum for our ships of the skies. Here at Grand Coulee, as at Boulder Dam, Bonneville Dam, and other mighty power plants, gargantuan turbines, transformers and oil storage vaults are protected against fire at all times by C-O-TWO automatic and manually operated fire extinguishing systems and C-O-TWO portables.

IT'S SAFER because IT'S FASTER

C-O-TWO equipment employs carbon dioxide, the fastest non-damaging fire extinguishing agent. There are C-O-TWO systems with fixed piping installations to give fire protection for generators of the closed or semi-closed type, transformers and oil storage rooms. C-O-TWO hand or wheel type portables and hose reel units are available in various sizes to extinguish incipient fires before they spread to proportion requiring the built-in or hose reel type C-O-TWO extinguishers. C-O-TWO is recommended and approved for protecting oil, grease, paint, lacquer, alcohol, butane and other highly flammable chemicals against fires. C-O-TWO stops fire in split seconds without damage to machinery or materials.

The Firing Line
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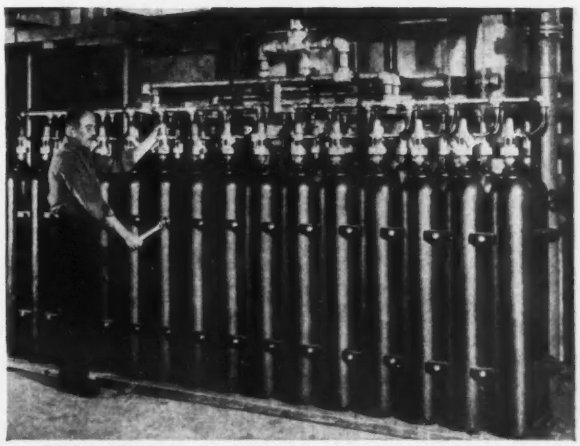
Stepping Up Fighting Power
Grand Coulee giant transformers protected against fire with C-O-TWO equipment.

C-O-TWO is a registered trademark. To be safe, specify C-O-TWO and this company's name when ordering.



Bombs of Protection
Bank of 60 C-O-TWO cylinders to protect Grand Coulee oil storage rooms.

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BOMBS

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New Fire Defense Training Courses Suggested

THE N.F.P.A. Committee on Firemen's Training consisting of outstanding representatives of the firemen's training field from both the United States and Canada, have recently made an important contribution to the development of systematic training programs through the preparation of an outline for a "Recommended Fire Defense Training Course."

This training outline has been developed to meet the needs of the war situation which has placed a greatly expanded burden of responsibility on fire departments. The outline was adopted at a meeting of the committee called at the request of Director James M. Landis of OCD for the purpose of indicating the scope of training believed desirable for fire departments in wartime. This report is being offered by OCD staff training advisers to cities and states as a guide to programs they may now have underway or in preparation.

The first section of the outline describes briefly the elements of training. This is followed by recommended fire defense courses suggesting training programs for chiefs of departments, chief officers, fire defense instructors, company officers, and firemen. In addition the outline suggests for each of these groups the special training they will want to meet the war situation.

One of the most useful features of the report is an annotated bibliography of publications useful in fire defense training. This bibliography is arranged to show the texts that would be most useful in the training of men in the various ranks up to chief of department.

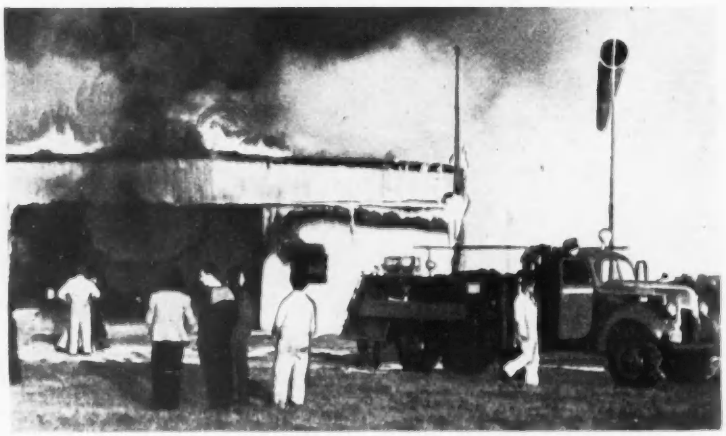
The Recommended Fire Defense Training Course has been prepared as an Advance Report of the N.F.P.A. Committee on Firemen's Training. The price for single copies is 10 cents.

New Standards on Foam Extinguishing Systems

THE new N.F.P.A. Standard on Foam Extinguishing Systems (superseding the edition of 1936) has recently been published by the National Board of Fire Underwriters. These standards were prepared by the N.F.P.A. Committee on Special Extinguishing Systems. The significant thing about the new standards is that they now provide for two types of foam systems.

Type I systems are suitable for use on flammable liquids such as petroleum and its products which are not miscible (do not mix) with water. Type II systems are suitable for use on flammable liquids which are miscible with water such as alcohols, esters, acetone. These systems may also be used on petroleum products and are effective on ethers. The standards further provide for three classes of foam extinguishing systems. Class A systems are for use with outdoor installations. Class B systems are for rooms and buildings with hazards not susceptible to ordinary automatic sprinkler protection. Class C systems are for inside hazards in rooms or buildings having other standard fire protection.

Copies of the new standard are available upon request to the N.F.P.A. or to the National Board of Fire Underwriters, 85 John Street, New York, N. Y.



AIRPORT WIPED OUT BY FIRE FOR THE DURATION

Chief L. Arthur Burch of the St. Catharines, Ontario, Fire Department sent in the above picture of a fire which destroyed a hangar and five planes at the St. Catharines Flying Club on November 1st. Fire started at 4:45 P. M. and was probably due to ignition of escaped gasoline by an extension light left on the floor of a plane. Delay in giving an alarm resulted because the country telephone line was busy. The picture was taken about the time the airport ground crew arrived at the fire with a crash truck. Later the city fire department was called. The only available water supply was a ditch that permitted the department's pumper to supply two lines of 1½-inch hose. Lack of planes will close the club for the duration.

NEW PUBLICATIONS

A new 350-page manual entitled "Fire Prevention Education" has been issued by the Center for Safety Education of New York University. The book is divided into two sections designated as Part I, The School Program, and Part II, The Community Program. Single copies sell for 85 cents and with orders of 10 to 50 copies the price is 50 cents a copy. Orders should be sent direct to the Center for Safety Education, 8 Fifth Avenue, New York, N. Y.

"Fundamentals for the Fire Fighter" is the title of a fire department manual prepared for use of the Minneapolis Fire Department by Assistant Chief George S. Lockhart. The book covers fundamentals for the fire fighter, drill evolutions, salvage principles and a guide on fire streams and pump engine operation. Published through the cooperation of the Minneapolis City Council and the Citizens' Defense Council. 200 pages. 1942.

A new edition of the N.F.P.A. pamphlet "Magnesium and Its Alloys" has been published to bring up to date the last edition published in 1941. The authors, H. S. Hirst and A. B. Guise, have made a number of important revisions in the text to cover the extensive developments in this field during the past year. Copies may be obtained from the N.F.P.A. at 20 cents each.

"Shipyard Fire Protection," by C. A. Vlachos, reprinted from the Proceedings of the 45th Annual Meeting of the National Fire Protection Association held at Toronto, Ont. This 10-page pamphlet includes interesting information on the protection of shipyard buildings, protection of launching ways, protection during fitting out of vessels, and watchman service. Copies may be obtained from the N.F.P.A. office at a cost of 20 cents each.

A pictorial folder entitled "Winter Fire Hazards" has been issued for popular distribution to the public. Single copies will be sent free on request. Additional copies may be secured from the N.F.P.A. office at $1.50 per hundred or $10 per thousand.

NEW WAR POSTER

"Leave Flame-Throwing to US," a new poster issued by the N.F.P.A. in cooperation with the Army Fire Prevention Program. The poster is intended to encourage fire prevention in war manufacturing plants. Copies are available from the N.F.P.A. office at $1.50 per hundred, $10 per thousand. Single copies will be sent free on request.

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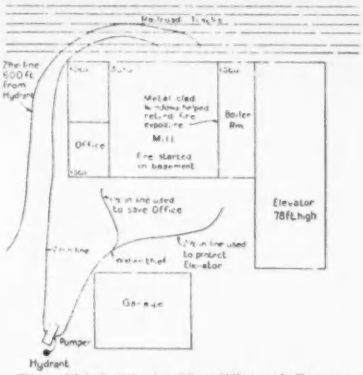
WPB Drastically Cuts Materials for Equipment Apr. 6

VOLUNTEERS FIGHT MILL FIRE



Fire Chief Edwin H. Miller of Brownstown, Indiana, Volunteer Fire Department, sent in the above diagram showing how his department fought a blaze in the Ewing Mill at Brownstown on October 2nd. Because all windows were covered with closed wooden shutters, the blaze was not observed before it had gained great headway. Although woodwork inside the elevator section was ignited at least five times by the intense heat, the firemen succeeded in saving both the elevator and the plant office. The fire loss was $40,000.

NEW OCD TEXTS

OCD pamphlet 3031, "Passive Protection for Industrial Plants," 46 pages, suggests civilian defense organization and procedures for industrial properties. The pamphlet contains a brief section entitled "Fire Service."

OCD Publication 3055, "Training Outline for Fire Defense Instructors," has been issued by the Office of Civilian Defense. The material for this 31-page mimeographed booklet was originally developed by the Department of Trade and Industrial Education of Oklahoma A & M College by means of instructor training conferences. Request for copies of this pamphlet should be directed to local or regional OCD offices.

ANNOUNCEMENTS

The Acme Protection Equipment Co., Inc., of Pittsburgh, Pa., announces that its Full-Vision All-Purpose Gas Mask has received a certificate of approval from the U. S. Bureau of Mines. It is classed by the Bureau of Mines as a "permissible universal gas mask."

The editors of VOLUNTEER FIREMEN and the Pyrene Manufacturing Company of Newark, N. J., announce the termination of the Pyrene Prize Letter Contest which has been a feature of this magazine for more than eight years. During that time prizes amounting to more than $1,500.00 have been awarded to winners representing forty-four of the states in the United States and all but two Canadian provinces. Prize winning entries were also received from Alaska, Hawaii, and Australia. The contest has shown the value of first aid fire appliances.

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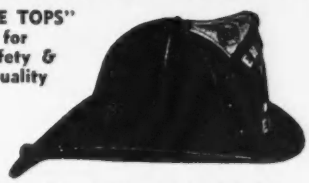

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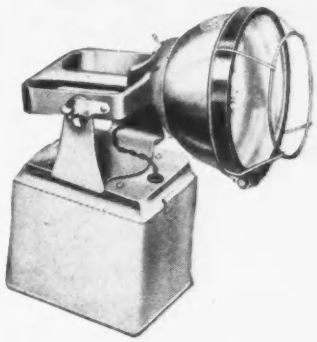

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FIRE and how to fight it!

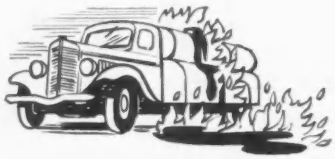
HOW DO YOU KILL FLAMMABLE LIQUID BLAZES?

Q. What are flammable liquid fires?

A. They are fires in oils, gasoline, solvents, paints, lacquers, and the like. Authorities call these Class "B" blazes and recommend extinguishers with a *smothering* or *blanketing* action.

Q. Will every type of extinguisher work on all kinds of flammable liquid fires?

A. No! Water streams, for example, are usually ineffective and extinguishers which employ a liquid stream will generally not handle three-dimensional blazes.



Q. What is a three-dimensional blaze?

A. It is a fire which burns at more than one level, as when a container ignites and spills a flowing stream of burning liquid over its sides. Carbon dioxide extinguishers readily handle this type of fire. Work from the bottom up. Kill the fire at the lowest level first.

Q. What is a running fire?

A. It is a flammable liquid blaze which occurs when a flowing stream becomes ignited. You fight this fire by working against the flow of the liquid. If a pipe is leaking, start at the extreme edge of the fire and work back toward the pipe. If a container is spilling its burning contents, work toward the container.

Q. What is a spill fire?

A. This is simply a fire resulting from liquid spilled on the ground or on the floor. Don't try to kill all of this fire at once, if it covers a large area. Start at one point, smother all flames there and continue, part by part, until the entire fire is out.

If you are outdoors, *keep wind at your back.*

Q. How about fires in open vessels?

A. Always "bank" stream from foam or vaporizing liquid extinguishers off inside wall of container. Don't squirt directly on burning surface. With carbon dioxide units, aim discharge at nearest portion, then work up on the fire with slow, sweeping motion.

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THIS ADVERTISEMENT IS ONE OF A SERIES APPEARING CURRENTLY IN INDUSTRIAL PUBLICATIONS.